Volunteer Lake Assessment Program Individual Lake Reports

MAY POND, WASHINGTON, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	3,776	**Max. Depth (m):**	7.6	**Flushing Rate (yr^{-1})**	11.1
Surface Area (Ac.):	149	**Mean Depth (m):**	1.4	**P Retention Coef:**	0.5
Shore Length (m):	5,300	**Volume (m^3):**	905,000	**Elevation (ft):**	1603

TROPHIC CLASSIFICATION

Year	Trophic class
1984	MESOTROPHIC
2004	MESOTROPHIC

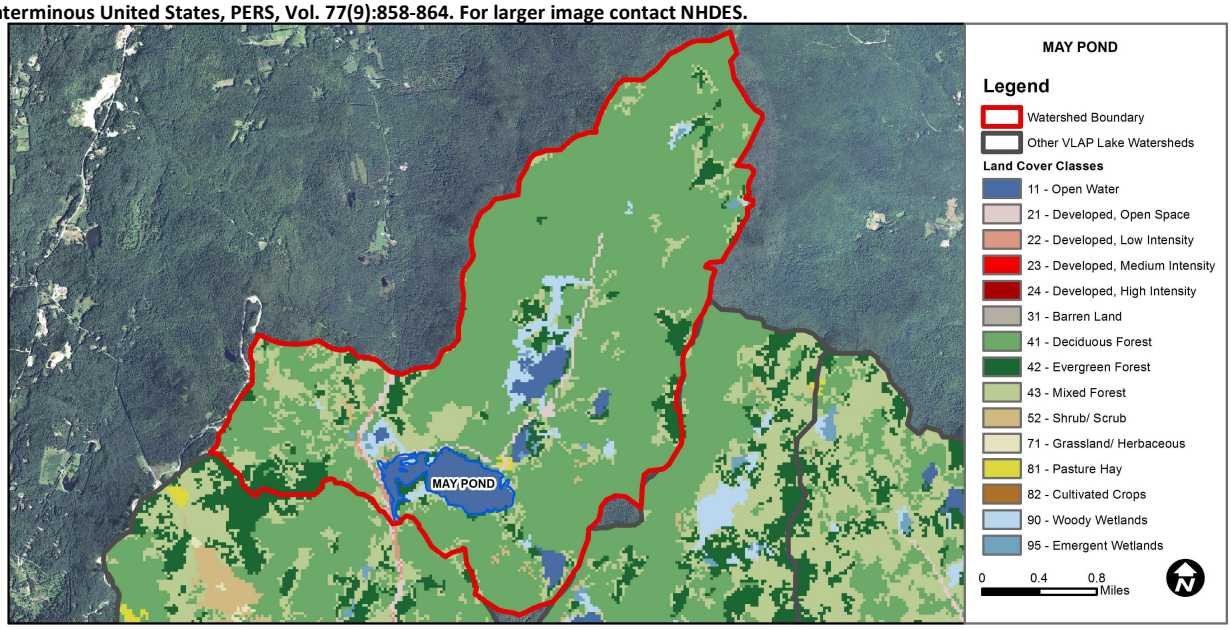
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the DRAFT 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator and the chlorophyll a indicator is okay.
	pH	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	Oxygen, Dissolved	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Dissolved oxygen satura	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Chlorophyll-a	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator.
Primary Contact Recreation	Escherichia coli	Very Good	Where there are no geometric means, all bacteria samples are < 75% of the geometric mean. Where there are geometric means all single bacteria samples are < the SSMC and all geometric means are < geometric mean criteria.
	Chlorophyll-a	Very Good	There are a total of at least 10 samples with 0 exceedances of indicator.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	5.69	Barren Land	0	Grassland/Herbaceous	0.04
Developed-Open Space	1.34	Deciduous Forest	70.59	Pasture Hay	0.1
Developed-Low Intensity	0.26	Evergreen Forest	6.74	Cultivated Crops	0
Developed-Medium Intensity	0	Mixed Forest	11.23	Woody Wetlands	2.87
Developed-High Intensity	0	Shrub-Scrub	0.44	Emergent Wetlands	0.4

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

MAY POND, WASHINGTON

2015 DATA SUMMARY

RECOMMENDED ACTIONS: Chlorophyll levels (algal growth) have significantly increased (worsened) in recent years and epilimnetic phosphorus levels have also increased although not significantly. While chlorophyll and phosphorus levels remain in a low range, the increase may indicate a shift in pond water quality. Vickery Pond Inlet phosphorus levels were elevated following storm events in July and August. The increased frequency and intensity of storm events in recent years highlights the importance of reducing impacts from stormwater runoff. Work with Pillsbury State Park staff to install stormwater best practices along roads and campsites to reduce erosion and nutrient transport to the pond. Work with Pillsbury State Park staff to educate campers not to bathe or dump waste water in or near streams that enter the pond or in the pond itself. Encourage Pillsbury State Park to join the Soak Up the Rain NH program for assistance with stormwater projects. Visit www.soaknh.org for more information.

OBSERVATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphics)*

- **CHLOROPHYLL-A:** Chlorophyll levels were elevated in June and then decreased to low levels in July and August. Average chlorophyll levels remained stable with 2014 and were approximately equal to the state median. Historical trend analysis indicates significantly increasing (worsening) chlorophyll levels since monitoring began.
- **CONDUCTIVITY/CHLORIDE:** Deep spot and tributary conductivity levels were low and much less than the state median. Historical trend analysis indicates significantly decreasing (improving) epilimnetic (upper water layer) conductivity since monitoring began.
- **TOTAL PHOSPHORUS:** Epilimnetic and hypolimnetic (lower water layer) phosphorus remained stable and low from June through August. Average epilimnetic phosphorus decreased from 2014 and was less than the state median. Historical trend analysis indicates relatively stable epilimnetic phosphorus with moderate variability between years. Butterfield Outlet, Mill Pd. Inlet and Outlet phosphorus levels were low to average on each sampling event. Vickery Pond Inlet phosphorus levels were elevated on each sampling event and the turbidities were also slightly elevated following significant storm events.
- **TRANSPARENCY:** Transparency was good in 2015 despite the elevated algal growth in June. Transparency measured without the viewscope in August (NVS) improved from 2014 and was much better than the state median. Historical trend analysis indicates relatively stable transparency with moderate variability between years.
- **TURBIDITY:** Epilimnetic, hypolimnetic, and Butterfield Outlet turbidities were low and within average ranges for those stations. Mill Pd. Inlet turbidity was low in June and July but slightly elevated in August following the storm event. Outlet and Vickery Pond Inlet turbidities were slightly elevated on each sampling event.
- **PH:** Deep spot and tributary pH levels were less than desirable range 6.5-8.0 units and range between acidic and slightly acidic and could be potentially critical to the growth and reproduction of aquatic life. Historical trend analysis indicates highly variable epilimnetic pH since monitoring began, however since 2007, epilimnetic pH has recovered and has remained fairly stable since 2007. Tributary pH levels also show signs of recovery which is encouraging.

Table 1. 2015 Average Water Quality Data for MAY POND

Station Name	Alk. mg/l	Chlor-a ug/l	Cond. uS/cm	Total P ug/l	Trans. m		Turb. ntu	pH
					NVS	VS		
Epilimnion	1.7	4.41	11.1	7	4.77	4.17	1.21	5.91
Hypolimnion			11.1	9			1.10	6.07
Butterfield Outlet			12.2	6			0.79	5.95
Mill Pd. Inlet			10.9	9			0.92	6.02
Outlet			25.0	11			1.21	6.21
Vickery Pd. Inlet			26.8	28			1.73	6.44

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: > 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: between 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
Conductivity	Improving	Data significantly decreasing.	Chlorophyll-a	Worsening	Data significantly increasing.
pH (epilimnion)	Stable	Trend not significant; data highly variable.	Transparency	Stable	Trend not significant; data moderately variable.
			Phosphorus (epilimnion)	Stable	Trend not significant; data moderately variable.